



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,280	11/14/2005	Sukru Yilmaz	E3059-00015	6565
8933 7590 02/04/2009 DUANE MORRIS LLP - Philadelphia IP DEPARTMENT 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103-4196			EXAMINER ALLI, IYABO	
			ART UNIT 2877	PAPER NUMBER
			MAIL DATE 02/04/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/556,280	<b>Applicant(s)</b> YILMAZ ET AL.	
	<b>Examiner</b> IYABO S. ALLI	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5,7,10-12,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) 6,8,9 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,10-12,14 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/15/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see Remarks on pages, filed on November 17, 2008, with respect to the rejection(s) of claim(s) 1-5, 7, 10-12, 14 and 15 under 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of **Hughes et al.**
2. Acknowledgement is given to cancelled claims 6, 8, 9 and 13.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thirstup** (6,738,141) in view of **Hughes et al.** (3,532,429). ('**Hughes**')

**As to claim 1, Thirstup** a light source (**14** or **26**) for illuminating the sample, wherein the light source comprises a plurality of discrete light sources (**14 & 26**) (Column 12, lines 6-7 & 24-26); and a receiver (detector array **23**) for receiving light reflected from the sample (Column 10, lines 23-25 and Fig. 4b).

**Thirstup fails to disclose** an optical diffraction grid for reflecting light from each of the discrete light sources into a single light point, wherein the light from each of the

Art Unit: 2877

discrete light sources having different angle of incidence at the optical diffraction grid and same diffraction angle.

However, **Hughes** teaches an optical diffraction grid (diffraction grating **11**) for reflecting light from each of the discrete light sources into a single light point (Figure), wherein the light **8-10** from each of the discrete light sources **1-3** having different angle of incidence at the optical diffraction grid **11** and same diffraction angle (Columns 1 & 2, lines 60-66 & 1-5 and Figure).

It would have been obvious to one skilled in the art at the time of the invention to include the diffraction grid of **Hughes** in the refractometer of **Thirstup** in order to combined illuminated beam from a light source so total reflection and refraction is able to be measured.

**As to claim 2, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **in addition Thirstup** discloses wherein the light source **14** comprises a plurality of white light lamps arranged at preset spaced locations next to one another (Column 12, lines 3-7 and Fig. 4a).

**As to claim 3, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **in addition Thirstup** discloses wherein the light source comprises a plurality of LEDs arranged at preset spaced locations next to one another (Column 9, lines 35-37).

Although **Thirstup** in view of **Hughes** *fails to disclose* the LEDs being color LEDs it would have been obvious to one skilled in the art at the time of the invention to

Art Unit: 2877

utilize illumination devices with different wavelengths in order to determine the amount of absorption the surface under test undergoes within a certain spectrum.

**As to claim 4, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 3 above **except for** wherein an interference filter, by means of which the light of the LEDs are filtered to a desired wavelength, is arranged downstream of each LED.

However, **Hughes** teaches wherein an interference filter (slits **4-5**), by means of which the light **8-10** of the LEDs (hollow cathodes **1-3**) are filtered to a desired wavelength, is arranged downstream of each LED (Column 1, lines 60-65 and Figure).

It would have been obvious to one skilled in the art at the time of the invention to include the filter of **Hughes** in the refractometer of **Thirstup** in order to only allow desired intensities to illuminate the object under test before contacting the detection devices.

**As to claim 5, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **in addition Thirstup** discloses wherein the receiver is a one-dimensional CCD photodiode cell (detector array **23**) (Column 11, lines 61-63 and Fig. 3a).

**As to claim 7, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 4 above **except for** wherein lenses, which optimize the transmission of the light through the interference filters at the same time and make

Art Unit: 2877

possible a more defined effective wavelength and full width at half-maximum, are provided to improve the coupling of the light into discrete beam paths.

However, **Hughes** teaches wherein lenses, which optimize the transmission of the light through the interference filters (slits **4-6**) at the same time and make possible a more defined effective wavelength and full width at half-maximum, are provided to improve the coupling of the light (beams **8-10**) into discrete beam paths (Column 1, lines 60-65 and Figure).

It would have been obvious to one skilled in the art at the time of the invention to include the lenses and filter of **Hughes** in the refractometer of **Thirstup** in order to only allow desired intensities to illuminate the object under test before contacting the detection devices.

**As to claim 10, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **in addition Thirstup** discloses wherein a direct vision prism **2** with dispersing property is provided instead of the optical diffraction grid (Column 9, lines 17-22 and Fig. 1).

**As to claim 11, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **in addition Thirstup** discloses wherein a monochromatic lens **4** (monochromatic light from source **14**) is provided instead of the optical diffraction grid (Column 10, lines 17-19 and Fig. 1).

**As to claim 12, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **except for** wherein a transmission diffraction grid with dispersing property is provided instead of the optical reflection diffraction grid.

Although **Thirstup** in view of **Hughes** **fails to disclose** a transmission diffraction grid, it would have been obvious to one skilled in the art at the time of the invention to utilize and suitable diffraction component in the measuring system in order to vary illuminated intensities on the surface under test.

**As to claim 14, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **in addition Thirstup** discloses wherein each light source **14** and **26** in the plurality of discrete light sources emit different color light (Column 11, lines 41-52).

**And as to claim 15, Thirstup** in view of **Hughes** discloses all of the claimed limitations as applied to Claim 1 above **in addition Thirstup** discloses wherein each light source **14** and **26** in the plurality of discrete light sources are activated individually or together (Column 12, lines 31-35 and Fig. 4b).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IYABO S. ALLI whose telephone number is (571) 270-1331. The examiner can normally be reached on M-Fr: 7:30am- 5pm.

Art Unit: 2877

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IYABO S. ALLI  
Examiner  
Art Unit 2877  
January 20, 2009

/L. G. Lauchman/  
Primary Examiner, Art Unit 2877